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ДОПУСТИТЬ К ЗАЩИТЕ ПЕРЕД ГЭК

Зав. кафедрой Харитонова М.П.
_____ _____
(подпись) (Ф.И.О.)
«_____»_____2019 г.

MASTER THESIS

Study of psychological correlates of smoking behavior based on cross-cultural sampling

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Yekaterinburg
2020

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INTRODUCTION

The World Health Organization (WHO) estimates 8 million deaths due to smoking each year around the globe [108, 148]. Smoking leads to increased health risks of cardiovascular diseases, respiratory diseases, and cancer [51]. In addition, to the serious health risks, smoking also adds a heavy economic burden on users and the country. For instance, productivity losses due to premature mortality are at least RUB 671.6 billion each year in Russia [31, 63, 110]. There are approximately 40 million smokers in Russia (31%) which is about one third of the population. According to the Global Adults Tobacco Survey (GATS) of 2016, 18.3% of the smoking population is aged between 15 – 24 [52, 53]. Data shows smoking initiation starts at a young age in Russia. Among the Sri Lankan population approximately 2 million people smoke which is about 9.5% of the population. Out of this 2 million about 13.5% die or have a serious illness. [122]. Smoking among the age of 13 to 15 years is about 3.7%. The mean initiation of daily smoking is at 20.6 years [147]. Smoking among both these countries are a prevalent problem and has been for a long time.

Smoking has been associated with several mental disorders including, depression, anxiety disorders and schizophrenia. One of the prominent hypotheses in the literature, is that the reason smoking and mental health is so strongly associated, is because the role mental health plays in the initiation of smoking. For instance, anxiety in teenagers has been reported to be a robust predictor of smoking initiation and later transition into daily smoking [35, 62]. The overlap of smoking and mental illnesses when considering how nicotine affects the biology of the brain is not overtly surprising. Nicotine acts as a psychostimulant which effects several neuro-regulators in the brain that have an effect on mood and behaviour [99, 116]. One hypothesis is that nicotine is used to relieve the effects of anxiety [95] and people experience unpleasant symptoms of withdrawals upon cessation, lowering quitting rate. This has led to the idea that smoking is a form of self-medication

because it is so readily available, and people do not receive any other forms of mental health treatment [67, 145]

Like anxiety traits and stress, personality characteristics also seem to have an association with smoking behaviour. The most common traits that come up in the literature include conscientiousness, extraversion, and neuroticism. These traits seem to be heavily correlated with smokers and never smokers. With studies reporting smokers to have higher neuroticism and extraversion scores while having lower conscientiousness scores to never smokers [11, 22]. It is not surprising that personality plays a role in smoking behaviour since personality is an integral component of the human experience.

However, personality characteristics and its interaction with environment is a one of complexity. Personality traits are a product of several factors including culture and upbringing. This raises the question, how do the personality characteristics associated with smoking defer in distinct cultural groups such as Russia and Sri Lanka. Sri Lanka a strictly Asian culture whereas Russia a country with a mix of both European and Asian cultural elements. Smoking is a global issue, but studies have shown that the reasons why people initiate and continue to smoke can defer between countries and cultural groups [143]. Therefore, it is important to understand smoking in the context of each individual culture.

Another reason it is important to examine cultures such as Russia and Sri Lanka is because studies conducted using Russian and Sri Lanka demographics are severely lacking. The issue of sampling is one of great importance especially when it comes to policy making based on studies. Using studies conducted with other samples, especially Western based studies and accepting those results to hold water in an entirely different sample, with a different culture can be risky. More cross-cultural research is crucial, especially in matters involving public health and safety. This paper hopes to add to the literature's cross-cultural validity and provide a more in-depth view on the psychological profile of smokers and never smokers in Russia and Sri Lanka.

The object of this study is to examine the psychological aspects of smoking behaviour.

The subject of this study is to examine the psychological characteristics of subjects of smoking behaviour in Russia and Sri Lanka with a focus on current smokers and never smokers.

The aim of this study is to examine-

1. How personality characteristics differ between current smokers and never smokers in Russia and Sri Lanka
2. How personality characteristics differ between Sri Lankan and Russian smokers.

The study plans to accomplish this by doing the following tasks.

1. Examine the global literature to look at where the current state of the research is for smoking, and its relationship to personality, anxiety, and stress.
2. Examine how culture plays a role in the relationship between personality characteristics and smoking behaviour,
3. Assess the literature from Russia and Sri Lanka and studies using this population.
4. Determine the severity of the problem of smoking in Russia and Sri Lanka and what steps have been taken to mitigate the effects of smoking.
5. Research and collect the best instruments to measure the five factor personality traits, anxiety for trait and state anxiety and stress.
6. Collect the data from the target samples. Sri Lankan data to be collected in Sri Lanka and Russian data in Russia.
7. Analyse the results to examine the differences between the groups of smokers in both samples.

After assessing the literature on personality characteristics, and its relationship to smoking behaviour this study postulated the following hypotheses.

Hypothesis 1 – Current smokers will have higher extraversion, neuroticism, anxiety, and stress scores in comparison to never smokers in both Sri Lanka and Russia.

Hypothesis 2 – Current smokers will have lower conscientiousness and agreeableness scores in comparison to never smokers in both Sri Lanka and Russia.

Hypothesis 3 – Personality characteristics will differ between Russian and Sri Lankan current smokers.

This study collected data from a total of 344 participants. Russian sample consisting of 165 participants and the Sri Lankan sample with 179 participants. The data was collected with the aid of three assessment tools to measure the intended personality characteristics. Big Five Inventory for personality, State – Trait Anxiety Inventory for anxiety and the Perceived Stress Scale for stress.

This paper is structured as follows; The introduction will present the problem at hand and its severity. After which the paper will lay out how it attempts to examine the problem and how the work is relevant in addressing the issue. Upon completion, the paper will introduce the steps taken to carry out the study and introduce the hypotheses.

The first chapter will explore and analyse the literature on smoking and its relationship to specific personality traits. The predicative efficacy of personality traits will also be discussed. In addition, cultural implications on the relationship between smoking and personality will be explored with a focus on Russia and Sri Lanka. Finally, the chapter will briefly outline the current state of smoking in both nations and strategies taken to mitigate smoking.

Chapter two will examine the role of anxiety in moderating smoking behaviour. In addition, the chapter will also examine how both anxiety and stress can be adopted as coping mechanisms among smokers.

Chapter three will outline the methodology, experimental design, and participants. The chapter will also justify the use of its materials and outline the

statistical analysis and results. Finally, the results will be explained and discussed based on each personality characteristic and hypotheses.

The paper will end with a conclusion of the study's results, limitations, and direction for future research.

CHAPTER 1. SMOKING AS A PSYCHOSOCIAL PHENOMENON

1.1 Basic approaches to the study of smoking behaviour and its relationship to personality as indicators

Research on the relationship between smoking and personality has been extensive. Studies have examined this relationship in depth and have found varied results mostly due to the difficulty and subjective nature of personality. Personality, by itself, has long been the focus of science and research for centuries. For this paper, the argument will focus on the influence of biological and environmental factors on personality as the consensus is that they both play a part in shaping personality [117] and how this personality relates to smoking behaviour. Studies such as these illustrate the influence of biology on personality. For instance, a study conducted by Thomas and Chess [135] found that infants can be placed into three categories of temperament; slow to warm up, easy or difficult. Additional twin studies illustrate the role of biology in behaviour [39, 83, 94, 119]. It is also important to note that even though genetics plays a role, the environment comes into the mix as well [5] The literature suggests that personality can be a product of biology and the environment which then leads to the next question; how does personality affect behaviour and more importantly, self-detrimental behaviour i.e. smoking?

As mentioned, personality and smoking has long been researched with an extensive collection of results. This paper will examine the literature focusing on personality and smoking, placing heavy emphasis on studies using the Five Factor Model and Eysenck's theory of personality to measure personality since this paper is using a similar methodology. Several factors have been associated with smoking behaviour including parental smoking behaviour, socioeconomic status, and peer pressure [29]. More importantly, many personality traits have also been associated with smoking, primarily high extroversion, and high neuroticism [80, 129]. A meta – analysis of 25 cross- sectional studies with a total sample of 12,763 smokers and

35,738 non-smokers, examined smoking behaviour with neuroticism and extraversion. The study reported smokers to have significantly higher extraversion and higher neuroticism scores in comparison to non – smokers [80].

In addition to extraversion and neuroticism, other five factor traits have also been correlated with smoking. For instance, another meta – analysis examining the health correlates of the trait, conscientiousness, with a total sample of 46,725, reported results that smokers were lower in conscientiousness than non-smokers [17]. Low agreeableness among smokers is also a recurring relationship being observed. For instance, a meta – analysis covering nine published papers with a total of 4730 participants reported smokers scored lower on agreeableness [75]. Examining additional meta-analytical based research, an interesting study examined personality and smoking by compiling studies from Australia, Germany, the UK and the US. The researchers collected nine cohort studies with a total sample size of 79,757, which had collected personality data using the Five Factor model and smoking status (current smoker, ex-smoker, and never smoker) with smoking initiation and smoking cessation. The study found current smoking to be associated with higher extraversion, higher neuroticism, and lower conscientiousness [91].

Studies examining different cultural groups within one country also find similar results. For example, a study examined personality characteristics and nicotine dependence among African Americans and European Americans. The researchers collected data from 5040 participants (2,566 non-smokers and 2,474 smokers) and personality from the NEO – personality inventory and nicotine dependence from the ND Syndrome Scale. The study found that higher neuroticism was linked in African Americans who had a higher likelihood of smoking and European Americans of being current smokers. Conscientiousness was shown to have a significant effect on decreased risk of smoking among African Americans [104].

The differences discussed above primarily focus on the personality traits of current smokers and never smokers. Multiple longitudinal studies have also

examined personality traits that predict smoking initiation, relapse, and cessation. One of the meta – analysis discussed above [91] also considered longitudinal studies, finding that within non-smokers, smoking initiation was predicted by higher extraversion and lower conscientiousness levels. While higher neuroticism predicted smoking relapse in past smokers.

Another interesting study using a longitudinal design (1962 – 1999) used the data collected by a national survey which recorded and followed all legitimate births for the period of one week in March 1946 for a total of 5362 participants. The survey collected data 20 times, 10 before the participants were 16 and 10 after. Personality data was collected using the Maudsley Personality Inventory (MPI). The study used the personality scores collected at 16 to examine the relationship of current smoking behaviour between 20 to 53 years. The study found that personality scores of high extraversion and neuroticism were all independently associated with being a current smoker than a non – smoker at any point during 20 and 53 years old. It is important to not the observed effect sizes were small. Nevertheless, the study still reports smoking initiation to be associated with higher extraversion and neuroticism scores [79].

Overall, there seems to be a general consensus among the literature about the personality differences between smokers and non-smokers. Even going back to an empirical review conducted as far back as 1970 which reported smokers to be more externally oriented, extraverted, impulsive, and more disagreeable than non – smokers [115]. Following this study, other research conducted on traits of personality were widely based on stimulation and mood regulation. For instance, Eysenck suggested that individuals with high extraversion smoked looking for stimulation whereas individuals with high neuroticism smoked in order to alleviate tension and anxiety [43, 128]. However, looking at the literature it would be inaccurate to state that some results have not been mixed in some studies [19, 47, 66, 77, 118]. Nevertheless, when results do show differences, generally, smokers are within the group of higher extraversion and higher neuroticism in comparison to

never smokers. It is important to note most of the above discussed studies were carried out in the West, not all but most, and lacked cultural diversity and samples from different parts of the world. Therefore, it will be interesting to see if these results will hold to be true in the Russian and Sri Lanka populations.

1.2. Early development of personality and its predictive efficacy of smoking behaviour

This paper is looking to draw lines between personality and smoking behaviour. But before that, it is prudent to carry out a close examination of how early development occurs in relation to personality and health related behaviours. Because children are moulded by the environment they grow up in (family, peers, relationships, culture, etc) and their personality characteristics (biology) [137]. In addition, it is also important to assess the predicative efficacy of personality characteristics on future addictive behaviours. Several studies have shown early psychological characteristics can be good predictors of future unhealthy or addictive behaviour [7, 18, 20, 23, 92, 93]. Understanding the processes underlying development will allow for a better understanding of personality and health.

Just like smoking, drug use has been a prevalent problem especially among young people and understanding the role of personality throughout growth and its influence on these changes is important. An interesting study conducted looks at the effect on personality on various behaviours. The researchers carried out a longitudinal study by recruiting children at a young age and following them over the years. The researchers found that factors like depression and drug use at adolescent years can be predicted based on their childhood personality knowledge and social environment especially social pressure [15]. Such studies, among others [48, 101, 113], are important in showing how early childhood personality traits can be important predictors of future behaviour such as drug use. This raises the question

of how early personality markers can be predictors of later smoking in adolescents and adulthood.

A study by Guller, Zapolski, and Smith [56] aimed to determine the predictive efficacy of three types of personality traits based on impulsivity which included urgency, sensation seeking and conscientiousness on addictive behaviours. The study recruited 1906 children and examined them in 2 waves. The first wave or set of data was collected in the final year of elementary school and the second set of data was collected in the first year of their middle school. Additional data was then collected 1 year after, at the end of the sixth grade to assess addictive behaviours. The overall results of the research suggested that personality traits recorded at elementary school can predict addictive behaviours in the future. Measures of urgency among elementary school participants increases the risk of all three measured addictive behaviours (drinking, smoking, binge eating). Low conscientiousness scores collected at the fifth grade correlated to an increased risk of drinking and smoking at the end of the sixth grade. In summary, low levels of conscientiousness and higher levers of urgency could potentially be influencing a child's future developmental path and increased risk of involvement in addictive behaviours.

Another interesting study aimed to examine to what extent anxiety and depression could predict the onset of smoking in adolescence. The study was based on a cohort design over 6 waves. The study collected samples from 2032 students aged 15 and 14 in Australia. Data was collected from the students over a 3-year period. The study found that anxiety and depression in addition to peer smoking greatly predicted the initiation of smoking. The authors also added that anxiety and depression accentuated the risks of smoking associated with peers who smoke. The study also looked to determine if after smoking initiation as experimental smoking was a predictor of daily smoking later. The study found experimental smoking to be an overwhelming rigorous predictor of daily smoking later [34].

The above discussed study brings up an important point about experimental smoking leading into daily smoking. This leads to another vital question researchers should ask, does experimental smoking lead to daily smoking among teenagers? This adds another lay of complexity to the issue of smoking. If psychological traits are related to smoking initiation and if smoking initiation later results in daily smoking, it is, indeed, a dangerous pattern.

The literature on the matter of experimental smoking leading to daily smoking is strong, with several studies reporting experimental smokers becoming daily smokers [4, 37, 60, 76, 84, 140]. One study aimed to identify predictors that affect the transition between smoking experimentally to smoking daily in a years' time. The study analysed data collected by a national survey for adolescents (n = 4903) and reported that experimental smokers remained so or became continued daily smokers [88].

A study conducted by Collins and colleagues [102] looked at how psychosocial factors predict smoking initiation and continuation in teenagers. It was a 16-month longitudinal study that collected three wave sets of data. A total of 3295 students from the 7th grade were recruited and asked to fill out questionnaires on their smoking behaviour and other psychosocial items. The study reported earlier smoking experimentation to be the strongest predictor of future smoking behaviour among all other factors. Such studies indicate a strong relationship between experimental smokers becoming daily smokers.

In conclusion, personality characteristics between smokers and never smokers seem to be following a pattern, not a solid pattern, but a pattern, nonetheless. Current smokers exhibit higher traits of extraversion and neuroticism and lower traits of conscientiousness and agreeableness. In addition, these personality traits also exhibit to have good predictive efficacy as illustrated by several longitudinal studies discussed above. The relationship between experimental smoking leading to daily smoking, according to the literature, is a relatively firm one. These results illustrate

that personality plays a role in smoking behaviour and is a relationship that needs to be thoroughly investigated among all cultural groups.

1.3. Impact of socio – cultural environment on smoking behaviour

Another aspect that needs to be brought into the discussion is the role of culture. Culture is passed down through generations in a society and encompasses ideas, behaviours, values, and tradition. This to a great extent mould's behaviours and traits of individuals living within that cultural group. Some behavioural traits maybe considered more acceptable while others may not. Thus, making one trait, for instance, the acceptable trait, to be reinforced while the other diminishes. This is important to note within the context of this paper because the two samples - Sri Lanka and Russia, have cultural distinctions with each other and with Western based cultures. The reason it is important is because Western theories and testing methodologies may not be applicable to other cultures [13]. There is increasing evidence to suggest personality traits vary depending on culture especially between broader cultural paradigms such as collectivist cultures and individualist cultures. Collectivist cultures such as most Asian and South American cultures are more inclined towards valuing social and collective needs over individual needs. In contrast, individualist cultures such as North American and Australian cultures value independence, individual expression, and competition. Examining the literature suggests that these wide cultural differences between collectivism and individualism have a significant impact on personality. For instance, a paper by Cheung, Vijver and Leong published in 2011 stated that personality traits of people living in collectivist societies were more socially oriented while personality traits of people living in individualist societies were more personally oriented [22]. Culture plays an important role in personality and this paper looked to be mindful of that especially when choosing the tool to assess personality. And, one of the reasons the Big Five

Inventory (BFI – 44) was chosen was because it has shown high consistency across different cultural groups (in depth justifications made further down the paper).

Studies examining such distinct cultural groups such as Russian and Sri Lankan cultures are lacking. This paper hopes to add to the literature by comparing two different cultures and how it affects smoking behaviour. This paper hypothesizes that Sri Lankan smokers and Russian smokers will differ in personality characteristics. Asian and European cultures have multiple differences and these differences can add to the way people behaviour, but because Russia is a mix of both European and Asian cultures this adds another layer of complexity. This makes it imperative that the Russian culture be explored in depth across its borders and within. Russia is a country of a long and complex history and is a culture that cannot be easily categorized. It shares many similarities with many different continents while having its own cultural peculiarities. The relationship of Russia's culture and smoking is one of complexity. However, examining this is of great importance given the high smoking prevalence within the country. This paper hopes to shed a little bit of little on this elusive relationship.

In comparison to Western and European cultures, Asian cultures are more collectivistic with the esteem of the group being more valued over that of an individual. Cooperation and dependence on the community are viewed as positive traits because they represent close bonds between family and community, they live in. Asian cultures value the cooperative skills they possess and behaviour that represents the wellbeing of the group. Sri Lanka shares many of the Asian cultural traits listed above and has a deep-rooted belief in the Buddhist philosophy of harmony and community. A study conducted by Perera [14] examined personality differences between Sri Lankans and The British. The study reported Sri Lankans to have significantly higher social desirability scores, while the British having much higher neuroticism scores than the Sri Lankans.

Page and colleagues [24] carried out a study that is very relevant to this paper. They examined the relationship between smoking and psychological distress in

adolescents from two distinct cultural groups – Central Eastern Europe (Czech Republic, Romania, Ukraine, Slovakia and Poland) and South East Asia (Taiwan, Thailand, and Philippines). The study found the psychosocial indicator of loneliness to be lower among the Central European girls who smoked while the Asian girls who smoked scoring higher in loneliness. Such results illustrate the differences that exist between cultures and its influence on smoking.

Sri Lanka is an island nation in the Indian ocean neighbouring India and Maldives. It is a middle-income country with better health indicators in comparison to its South East Asian neighbours despite having a low gross national product. Even so, current trends in health indicate a shift within the population, with cardiovascular diseases becoming one of the leading causes of death among the adult population with smoking and second smoke being one of the main culprits. Despite this, companies like the Ceylon Tobacco Company and British American tobacco, spend millions on marketing pushing their cigarettes. It is also important to note that they hold the monopoly of cigarettes in Sri Lanka and therefore play a huge role in the population's smoking habits. The industry has looked to promote smoking using innovative marketing initiatives, attempting to circumvent the strict smoking advertisement ban in the country. The companies even targeting the youth by placing adverts where they generally visit, such as festivals and concerts. The industry also has a huge lobbying arm within the government, controlling policy makers making these conglomerates exceedingly powerful. The industry has also been known to provide incentives to journalist to suppress anti-smoking messages through their mediums. In addition, to everyday cigarettes you and I are familiar to, the Sri Lankan population also consumes another low-cost cigarette known as beedi, widely found within the rural population and low-income households. Tobacco is also consumed by chewing it, mostly with betel leaves. This is vastly popular among many South-East Asian countries and is consumed widely [100]. Apart from tobacco's direct impact on health, it also places a heavy burden on a household's income. Cigarettes are not cheap in Sri Lanka averaging at about 5 - 6 USD for a pack of 20. This is

especially true when considering that the island is a low-income country with an average income of 4 -7 USD per day [121]. An entire day's pay can be equivalent to a packet of cigarettes.

Tobacco prevention initiatives have seen moderately high growth over the last decade from both governmental and non – governmental organizations, with some of the organizations even being backed by the WHO. Some of the measures taken include:

1. Smoke free areas - Smoking is prohibited in all public areas including roads, public transport, and even most indoor public areas such as restaurants (with some exceptions).
2. Promotion and advertising of tobacco products – Advertising through most mass media platforms is prohibited, including some limitations, but not entirely, on sponsoring tobacco.
3. Packaging of tobacco products – Cigarette packs must be covered with both text and pictorial warnings taking up 80 percent of the front and back of the packs. The images also must be rotated every six months. In addition, terms such as "low" and "light" or language/labelling that can be considered misleading is prohibited. However, this is harder to enforce due to issues of trademark and other legal complexities. Other prohibitions include the sale, production/manufacturing and importing of sweetened or flavoured cigarettes.
4. Content of cigarettes – The law can regulate the content on cigarettes including the ban on sugars (sweeteners, flavours, mints, and spearmint) and spices and herbs. However, this law has certain issues with many loopholes. For example, manufacturers do not have to disclose all the information on emissions and contents.
5. Sale – Cigarettes are not allowed to be sold on vending machines and automatic dispensing machines. Cigarettes are prohibited to be sold to any

persons under the age of 21. Which is higher compared to some countries and Russia's 18-year smoking prohibition age.

The country, as seen, has taken many steps to combat tobacco use and it is obviously positive, and it is good to see such developments taking place. However, treatment for nicotine addiction is severely lacking with hospitals not providing adequate programs, lack of nicotine patches and drugs such as Bupropion (E.g. Zyban) are to get [149]. The road to see true, fundamental change is long and requires more work. Most measures taken especially from a policy standpoint looks at mitigating and preventing tobacco use but we have yet to see research and results to better understand the root cause of smoking initiation and traits of current smokers. If we have a better understanding of the country's smoker profile, we would be armed with better knowledge in creating more effective smoking intervention strategies and cessation programs.

Smoking prevalence in Russia has been a major issue for several years now [139]. According to the statistics, Russia lands within the top 10 highest smoking countries in the world. Russia also has a considerably large tobacco market in the world even though it has only 2% of the population [96].

Throughout the world many steps have been taken to combat smoking addiction and one of the more prominent examples is the World Health Organization's Framework Convention on Tobacco Control or FCTC. One hundred and eighty-one countries had joined the FCTC by the end of 2017 which in itself is a great accomplishment. Russia joined in 2008, one of the country's that joined later, by still showing encouraging results. This with other measures the government has been taking are promising. A national strategy to fight tobacco consumption was launched in 2010 and following that the Ministry of Health introduced a law to include pictorial and text warnings on cigarette packets in 2012, with the law going into effect in 2013. The World Health Organization gave Russia a score of 7 out of 10 for this implementation [151].

In addition, after ratifying the FCTC the government put into motion several policies pushing for more smoke free environments. The law "On protecting the health of citizens from the effects of second hand tobacco smoke and the consequences of tobacco consumption" (Law No - 15, 2013) prohibits smoking in many indoor public areas, indoor workplaces, public transport and even some outdoor areas such as playgrounds, public buildings and beaches. Furthermore, in 2014 additional prohibitions were added to include hospitality locations (restaurants, cafés, etc) [136]. Russia also continued to increase taxing tobacco products, placing heavy restrictions on tobacco related advertisements, sponsorships, and promotions of all kinds. This was given a score of 10 for compliance. Additionally, Russia has also been pushing numerous anti - smoking campaigns and programs on a number of media platforms to curb smoking. This strategy has been, to a great extent, successful and the WHO also rated it an 8 for compliance. There have also been talks off raising the legal smoking age from 18 to 21, but it has not been implemented thus far.

Have these policy changes worked? According to the GATS reports they have. Data was compared from the GATS report of 2009 and 2016 [88].

- Overall smoking prevalence – Down from 39.4% to 30.9%.
- Attempted to quit – Up from 32.15 to 34.7%
- Advised to quit by health care provider – Up from 33.7% to 47.9%
- Thought about quitting due to pictorial warning labels – Up from 31.7% to 36%
- Thought about quitting due to anti – smoking or cigarette information – Up from 68.1% to 81.3% in any location.
- Noticed any type of sponsorships, promotions, or advertisements in stores in the last 30 days – Down from 68% to 23.1%
- Average cost of 20 cigarettes (manufactured) – Up from 24.5% to 79.7%

- Exposure to second-hand smoke – Down in all locations; homes, workplaces, restaurants, public transport, government buildings and health care facilities.

These policy changes and implementations show promising changes on several fronts. In addition, these changes have also overlapped with statistics showing a decline in mortality rates among adults and rising life expectancy, specifically showing a decline in cardiovascular diseases. It is unclear if it is directly related to smoking, but it is nevertheless a good sign. Having said this, the numbers have not been updated and new data has been lacking. Government monitoring has been severely falling short, with the exception of the Global Adult Tobacco Survey (GATS) report in 2016 (which was also 4 years ago) and a few independent studies [49]. No other additional surveys and monitoring has been carried on a national level. This lack in reporting on data is an issue that needs to be addressed to better understand where the country stands currently. Even with positive implementations being taken, one cannot deny smoking prevalence still looming around the 30% mark is nowhere close to where it should be. This raises the question of what more can be done to bring those numbers down. This paper hopes to take a step towards being able to add data to better understand and answer this very concern by asking, in a broad sense, what is the profile of a smoker in comparison to a non – smoker.

In conclusion, both countries have taken many steps to combat smoking addiction, but it is far from over. Both Russia and Sri Lanka face challenges that are both unique and similar. However, the relationship of its smoking population and cultural nuances are far from clear. Most of the steps discussed above look at the issue of smoking from a sociological and economic standpoint and this is understandable. Governments need to implement policies that are broad and impact as many people as it can. But these strategies are not making as far an impact as they could. Hence, why this paper is proposing a strategy that is based on psychology and mental health coupled with the existing approach. And to implement such strategies

there first must be more research to understand the smoking and non-smoking culture of the target county.

The above discussion also outlines how cultures differ and why the Russian culture is hard to be labelled or defined like Asian and Western cultures. Russia shares characteristics from both European and Asian cultures whereas Sri Lanka is entirely an Asian oriented culture. This difference is one that cannot be ignored and therefore this paper predicts that perhaps this distinction has an influence on the smoking population of both the countries. Smoking is a global issue but as discussed, its relationship in each country can be unique and this needs to be explored. In essence, any social policy decision should be based on research and this paper stresses that it must take into account the mentality of the population. Russian smoking behaviour is one that needs to be examined as extensively as possible because its cultural nuances are vast. This paper hopes to understand the smoking behaviour of each country within its own population and between the two populations.

CHAPTER 2. THEORETICAL ANALYSIS OF PSYCHOLOGICAL CHARACTERISTICS OF SUBJECTS OF SMOKING BEHAVIOUR

2.1. Anxiety as a personal characteristic of smoking behaviour

Anxiety as defined by the American Psychological Association (APA) is an emotion that is characterised as worried thoughts, feelings of tension and physiological changes such as elevated blood pressure. Anxiety is a feeling that everyone experiences, and it is a necessary part of the human response. Historically speaking feelings of anxiety are an integral part of our survival. Our early ancestors, more often than now, had to evade dangerous situations, such as an incoming predator. This response sets of a series of changes in our body. Increased heart rate, increased sensitivity to our surroundings and a rush of adrenaline. This rush of adrenaline triggers a response of anxiety or also more commonly known as the 'fight or flight' response. This response in turn helps us face the aversive situation we find ourselves in, by preparing our body.

Such life-threatening situations are obviously not something modern humans have to face as often as our ancestors, but we face a different set of challenges. Our difficult circumstances mostly revolve around matters of relationships, work, money, health, and other issues. It is important to note, the type of anxiety discussed above is focussed on anxiety arising due to external circumstances, which can also be referred to as state anxiety according to the State -Trait Anxiety Inventory [120].

Some people, however, experience anxiety more consistently for an unusually prolonged time. They experience negative emotions such as worrying, anxiety, and fears for a various array of situations even if sometimes the situation does not warrant for it. Another way of describing this type of anxiety is the persistent perception of environmental stimuli to be threatening in some way or another [50, 61]. This type of anxiety is also known as 'trait anxiety'. The basic difference between a person with trait anxiety is that they may experience anxiety in situations

that state anxious people may not. People may deal with this in different ways and some of these ways may be resorting to risky health behaviours. This paper is interested in looking at how both state and trait anxiety is related to the unhealthy behaviour of smoking.

Research examining anxiety and smoking behaviour has been carried out for a number of years, however the literature does not show a consistent trend with studies showing mixed results. There have been many studies conducted within a clinical setting with patients reported to have anxiety-based disorders [12]. However, research examining smoking behaviour within the general population of smokers and individual differences between people and their anxiety levels has not received much attention and whatever attention they have received show mixed results. This paper will look at the literature to assess and discuss these results.

There have been studies reporting smokers and chronic smokers to have higher trait anxiety in comparison to non-smokers. An interesting study was conducted with a sample of nurses and their smoking habits. Nurses being in the medical field are acutely aware of the risk of smoking and see its effects first-hand. Therefore, according to the study they make a good sample to examine. The study recruited 114 female nurses (26% - non-smokers, 28% - ex-smokers, 46% - current smokers) from one of the biggest respiratory hospitals based in Greece. They were administered the State – Trait Anxiety Inventory. The study reported that current smoking nurses had significantly higher reported scores on anxiety in comparison ex-smokers and non-smokers [87].

Another study recruited two groups, one with 88 participants addicted to nicotine and 84 healthy participants. The STAI, the Beck Depression Inventory (BDI) and the Coping Inventory for Stressful Situations (CISS) were administered. The study was looking at distinguishing nicotine addicts from non – nicotine addicts using the three measures. Final results reported trait anxiety to be higher in smokers than in non-smokers and the same for state anxiety. Suggesting anxiety to be a key

distinguishing factor between smokers and non-smokers [8]. Such studies in addition to a few a more [28, 59] all report similar results.

The studies discussed above examined the difference between smokers and non-smokers with the interest of looking at anxiety as a distinguishing factor between the two groups and report, consistently, that anxiety among smokers is higher in comparison to non-smokers. These studies provide a good foundation to base the hypothesis of this paper. Nevertheless, it is also important to look at studies that do not necessarily find similar results because of the mixed nature of the literature.

For instance, a study carried out by Henry, Jamner, Whalen and Kan [58] in 2012 examined adolescent smoking behaviour. The aim of the study was to determine if adolescents with higher trait anxiety reported higher use of cigarettes and if they reported a higher inclination to smoke during, before and after interacting with a friend, in comparison to adolescents with lower trait anxiety. Students were recruited based on if they have smoked more than once in high school with a total sample of 402 students. Controlling for anxiety the study found teenagers with higher trait anxiety were less likely or equally likely to smoke. The results stated teenagers with higher anxiety did not smoke more than students with lower anxiety. However, it is important to note the study did also report that teenagers with higher anxiety were more likely to report the urge to smoke when around social interactions with friends. Suggesting that teenagers feel they would like to smoke in situations that maybe they consider as anxiety provoking. Even though the study reports no difference between high and low anxiety students the urgency to smoke is different. This raises an interesting question about how people deal with anxiety provoking situations and if one would give in to those urges in the future even if they are not doing it now. Similar studies looking at anxiety and smoking behaviour also report finding no significant results within their research to suggest that smokers have higher anxiety scores in comparison to non-smoker [1, 21, 44, 54].

The studies reported above go the other way suggesting that there seems to be no relationship between smokers and anxiety levels. The literature is revealing several inconsistencies, and this may be attributed to reasons such as sampling. For example, some studies use college students and some use samples from the general population. One must also consider the varying sample sizes from study to study and the tools used to measure anxiety as they are not the same for all studies.

This paper also found studies reporting that smoking results in the decline of state anxiety [97, 98]. On the other end, studies are also reporting that smoking cessation is a significant factor in the decline of state anxiety. This is exhibited by a study that recruited 101 participants attempting to stop smoking and were followed over a period of four weeks. Their anxiety levels were measured using the STAI and the study reported that anxiety levels declined after abstinence starting from the first week. This contradicts the listing within the DSM – IV that states nicotine withdrawal symptoms includes an increased level of anxiety [144].

2.2. The role of stress and anxiety as a coping mechanism and smoking behaviour

Stress can be defined in a several ways and it is hard to pin down to one concrete definition. In general terms, stress can be defined as a response to a stimulus from outside, usually negative a one. It can cause a physiological or psychological reaction ranging from irritability, fatigue, loss of sleep and headaches. These are just a handful of symptoms people under stress can experience but people experience stress differently and their symptoms can be vastly different. In a nutshell, stress is something that can cause a person mental or physical discomfort or both. People deal with stress in many ways, some go for a walk, some look for comfort in the arms of their loved ones, some people workout, while others distract themselves with some other external stimuli like watching television or reading a book. Everyone has their own way of dealing with stress and their own coping strategy but what happens

if one's coping strategies are detrimental to his or her health. Alcohol and smoking are common vices people turn to when dealing with stress. There have been several studies examining this relationship and found a strong relationship between stress and unhealthy coping mechanisms [32, 71, 74, 82, 134]

Before diving into the literature of smoking and stress, it is important to make clear how stress and anxiety differ from each other. For the most part stress and anxiety are very similar to each other with the mental and physiological responses being very similar. The primary distinguishing factors is that stress goes away once the root cause goes away. However, anxiety is defined as an excessive and persistent feeling of unease even in the absence of an aversive event [4]. One can also note that people with anxiety may feel anxious at circumstances that do not necessarily warrant such a reaction. As discussed earlier, this kind of anxiety is also known as trait anxiety. The STAI measures trait anxiety and state anxiety. And state anxiety is more or less identical to how stress is defined. The reason an additional stress measure was chosen in this study is because this paper was looking to use an independent stress measure. Furthermore, if stress and state anxiety both produce similar results it would make the results on the relationship between stress and smoking behaviour more robust.

Stress is part of life that every person experience's, it is inescapable, and people have different ways of handling it. Life must go on despite stress and people who resort to unhealthy behave due to stress is something that is prevalent. This raises the question; how does stress relate to unhealthy behaviour? How does stress trigger a person into smoking? Does smoking have an effect on stress reduction? This paper will examine the literature to determine where the current research is at and what the general consensus is regarding this relationship.

The literature examining stress and unhealthy behaviours and smoking is extensive. Increased levels of stress are related to an increase in smoking levels, increase in smoking initiation and reduction in the successful attempts at cessation [10, 26, 70, 107, 126, 146]. A study conducted by Niaura, Shadel, Britt, and Abram

[107] aimed to examine the how social stress, in a controlled lab environment, would have an effect on the urge to smoke. The participants were recruited from a smoking clinic for smoking cessation, a total of 76 participants were recruited. Stress was induced in the participants using a social anxiety induction procedure (The Borkovee social anxiety procedure [42]) and the participants were asked to rate their urge to smoke. The study concluded that the increased stress after the stress induction procedure resulted in an increased urge to smoke.

People who are exceedingly aware of smoking and who are likely to have witnessed first-hand the devasting effects of smoking seem not to be immune to the effect of stress and smoking. A study conducted by Tagliacozzo, Dr. Natsci and Vaughn, [127] examined the stress nurses are under and if this stress results in nurses resorting to cigarettes to cope. The study mailed out questionnaires to the entire nursing staff in the University of Michigan to a total of 933 nurses and received back 448 responses. The study reported high stress scores for nurses with emotional and physical stress due to the job and overall lack of job satisfaction. These stress scores were higher in smokers than non-smokers. Other similar studies with nurses have shown consistent results [3, 40, 105, 111].

A more comprehensive meta-analysis looked at studies through 1995 to 2009 collecting a total of 491 research papers. The studies reported that workplace stress did not result in smoking initiation, but it was a significant hindrance to smoking cessation and or maintain a prior smoking quit attempt [133]. Doctors also seem to be succumbing to work-related stress and taking up smoking as a coping mechanism [6, 38, 41].

It is also important to examine the relationship between stress and smoking among adolescents. A study carried out by Siqueira, Marguerite and Rolnitzky [2] looked to assess the relationship between stress as a coping mechanism among an inner-city adolescent population. The study recruited 954 subjects between the 12 to 21 age range. The Perceived Stress Scale was administered to the participants and their smoking behaviour was collected and the subjects were categorized into current

smokers, never smokers and experimental smokers. The study reported that adolescents who were current smokers had the highest stress levels, and experimental smokers had lowers stress levels in comparison to current smokers, and never smokers had the lowest level of perceived stress among all three groups.

Another study with a similar premise looked at how stressful events such as family disruption, personal stress, breakups, schoolwork stress, etc is associated with substance abuse and mental health. The study collected data from 1025 students with a mean age of 12.9 years. The authors reported that all sources of stress were significantly related to mental health and family disruption was significantly associated to cigarette use [27]. Additional studies, with similar aims, examining the relationship smoking and stress among adolescents find similar results [46, 103]

All in all, stress seems to be a moderating effect on smoking among adults and teenagers. The studies discussed above illustrate that stress is a factor that should not be taken lightly. If it is, in fact, a major factor among this study's samples as well, smoking cessations programs can look to teach, individuals looking to quit, stress management techniques to help drop the habit.

It is not uncommon to hear smokers claiming that they smoke to manage their stress or anxiety. Does smoking really help with stress or anxiety management? Some studies have looked at trying to experimental manipulate levels of stress and anxiety and investigate its relationship to smoking. A study tried such an experiment by using a stage-fright task to induce anxiety in people and found that people smoked significantly more than when they were in the control task for relaxation [109]. A second study also looked at how smokers (moderate to heavy), who were allowed to smoke, while undergoing a stressful anagram experienced anxiety. The study found that the smokers who were allowed to smoke experienced a significant decline in anxiety [9].

Another study aimed to examine the influence of smoking on self-reported anxiety. The study reported that participant's self-reported anxiety scores were significantly lower after having smoked a cigarette. However, this difference was

right after the participants smoked and their moods worsened sometime after the cigarette. The authors reported that this suggests that smokers smoke to alleviate those negative feelings [90]

In conclusion, both cigarettes and anxiety and stress have a complex relationship. The above discussion looked to cover all grounds; difference in anxiety between smokers and non- smokers, smoking as coping mechanism, smoking itself acting to reduce anxiety and abstinence of smoking resulting in a decline in smoking. Anxiety, stress, and smoking seem to be heavily intertwined and the literature on the subject is mixed. However, looking at the relationship between the factors and the literature, it isn't a shot in the dark to suggest that perhaps smoking in itself is a coping mechanism for anxiety and stress, and also to suggest that perhaps smokers may have higher anxiety levels than non-smokers. Based on this, this paper hypothesizes that both samples of Russian and Sri Lankan current smokers will have higher anxiety scores for state and trait anxiety in comparison to never smokers.

CHAPTER 3. EXAMINATION OF THE RELATIONSHIP BETWEEN PSYCHOLOGICAL CHARACTERISTICS AND SMOKING

3.1. Description of research methods, procedure, and materials

The aim of this study was to examine how the relationship between psychological characteristics moderate the smoking habits of people in Russia and Sri Lanka. The study collected data for 5 personality traits – extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience. In addition, this study also collected data for anxiety and stress.

This study postulated the following hypotheses.

Hypothesis 1 – Current smokers will have higher extraversion, neuroticism, anxiety, and stress scores in comparison to never smokers in both Sri Lanka and Russia.

Hypothesis 2 – Current smokers will have lower conscientiousness and agreeableness scores in comparison to never smokers in both Sri Lanka and Russia.

Hypothesis 3 – Personality characteristics will differ between Russian and Sri Lankan current smokers.

Participants - A total of 344 participants were collected for this study. Russian sample consisting of a 165 and the Sri Lanka sample with 179. The participants were grouped as Russian Smokers – 73 (44%), Ex-smokers – 48 (29%) and Never smokers – 44 (27%). Similarly, the Sri Lankans were divided into Smokers – 74 (41%), Ex-smokers – 43 (24%) and Never smokers – 62 (35%). The mean age of the Russian sample and Sri Lanka sample was 31.3 and 32.9, respectively. The Russian sample had an almost equal gender distribution with 52 % male participants and 48 % female participants. Whereas, the Sri Lankan sample had an uneven gender distribution with 94% male participants and only 6% female participants.

Procedure - Data was collected from two different countries – Sri Lanka and Russia. Natives of both countries were chosen, and data was collected from the respective countries to ensure nationalities were true to the country. In Sri Lanka, the study set-up was based in the office of a well-known business space in the city. The questionnaires were handed out to customers that walked into the office between the time of 9 am to 2 pm. The data was collected over a period of three weeks with a total sample of 180 participants (Never smokers – 63, Past smokers – 43, Current smokers – 74). The participants were initially briefed on the questionnaire and general purpose of it. After which the participants were left alone in the office and asked to call upon completion. This was done to avoid any acquiescence or social desirability bias.

Data collection in Russia was carried out online. Participants were randomly selected from primarily three sources – Ural Federal University social media accounts, VK groups and friends. An online form of the questionnaire was created using google forms. The form was posted on the VK social media account – "Education Psychologist", managed by the university. In addition, the form was also posted on VK groups dedicated to smokers and past smokers however responses through this channel were minimal. The form was also passed to students in the university during lessons. A total of 166 participants were collected (Never smokers – 45, Past smokers – 48, Current smokers – 73).

The materials used for this study are as follows - A total of 3 questionnaires were selected in this study to measure Personality, Stress and Anxiety. In addition, an informed consent form and demographic information form was created. All information and questionnaires had both an English and Russian version.

1. Personality was measured with the aid of the Big Five Inventory [64]. The test comprised of 44 questions with a Likert scale of 1 – 5 (1 disagree strongly, 5 agree strongly). The inventory consists of questions such as, "Is talkative", "Tends to be lazy", "Is relaxed, and "Handles stress well". The inventory divides personality into 5 facets –

- Extraversion vs introversion
- Agreeableness vs antagonism
- Conscientiousness vs lack of direction
- Neuroticism vs emotional stability
- Openness vs closedness to experience

2. Stress was measured with the aid of the Perceived Stress Scale (PSS). The test consists of 10 questions with a Likert scale of 0 – 4 (0 – never, 4 – very often). The scale is used widely and considered a classic stress assessment tool. The scale includes questions that ask about thoughts and feelings during the last month. Example of questions include "In the last month, how often have you felt that you were unable to control the important things in your life?" Scores range from 0 – 40 with 0 – 13 being considered low stress, 14 – 26 considered moderate stress and 26 – 40 high
   stress.
3. Anxiety was measured using the State – Trait Anxiety Inventory for Adults [123]. The test comprises of 40 questions divided into 2 subsets equally. The first subset is designed to gauge state or situational anxiety (the anxiety based on the situation) and the second subset is aimed at determining trait anxiety (anxiety based on your trait/personality characteristics). To achieve this the inventory instructs the participant to answer the first set of questions as how they feel "*at that moment"* while the second to be answered as how they "*generally feel"*. Some questions are similar for both subsets. Examples include, "I feel secure", "I am jittery" and "I am tense". The inventory uses a Likert scale of 1 – 4 (1 – almost never, 4 – almost always) with a final score from 20 – 80 of each sub-set.
4. A demographic form was created to record information on age, gender email and smoking behaviour.

3.1.1. Detailed overview of materials and justifications.

BFI – 44 - The five-factor model of personality has been around for a long time but not just as five factors. The model has been examined through several different sets of researchers. The examination initially started by looking at different verbal descriptions of personality. One of the first models was put forward by Ernest Tupes and Christal in 1961. This was further extended by Lewis Goldberg who pushed the model into the forefront.

The five factors are broken down into:

1. Extraversion vs introversion – Extroverts are generally categorized and perceived as being full of energy and outgoing. The trait suggests people are stimulated by their external environment and therefore seek out environments that can provide this. Extroverts like to talk and engage in conversation, like to be in the company of people and are perceived as enthusiastic, pro-active and prefer high visibility within a group. Introverts, on the other hand, are not as inclined to seek out social stimuli and are perceived to be less social. They tend not to dominate social settings, seem more low-key or reserved. It is important not to confuse this with a lack of confidence but a more independent view of themselves outside of their social environment. Introverts do not seek environmental or social stimulation as much as extroverts and value the time they have with themselves [72].
2. Neuroticism vs emotional stability– Neuroticism is the inclination to experience emotions that are negative (depression, anger, shame, anxiety, etc) [81]. It is also sometimes referred as emotion instability and Eysenck theory referred to neuroticism as having a low tolerance to negative stimuli and stress. Neuroticism is a temperament trait that has been examined for decades before it was used in the Five Factor Model [65]. People with high neuroticism are very reactive to stress and can express their emotions in an unhealthy manner. They also tend to overreact to normal circumstances and can blow

things out of proportion. People with high neuroticism scores can also experience such negative feelings for long periods of time making them seem moody or emotionally unstable. On the other hand, lower neuroticism equals emotional stability. People who are more emotionally stable tend to react to aversive events in a calmer more calculated fashion. In addition, people who are more emotionally stable do not have consistent negative feelings and even when they do, they are better able to manage them.

3. Agreeableness – This is a trait that describes, as the name suggests, individual differences in one's concern about other people in society. Individuals who score high in agreeableness like to get on with other people. They look at the world through a more trusting lens and have faith in human nature. They like to be helpful even if sometimes it means going out of his/her way. They tend to be generous, considerate, empathetic, and trusting towards other people and share an overall optimistic outlook. On the other end of the spectrum people are more disagreeable or antagonistic. People scoring lower on this scale tend to be more sceptical of other people's intentions. They are not trusting of other people and this sometimes makes them come across as suspicious, lacking in empathy or just unfriendly. People scoring low on this scale can also be competitive and tend to challenge people often which makes them seem socially aggressive, over-assertive and argumentative [11].
4. Conscientiousness – This is a trait that defines a person as being disciplined, responsible, focussed and someone who is able to resist external temptations in order to get the job at hand done. People scoring high in this scale tend to be more organized and are able to regulate or manage their impulses effectively [131]. This trait is therefore sometimes also perceived as being stubborn and rigid. Lower scores in conscientiousness means a person takes a more easy-going and laid-back approach, can act spontaneously, and does not have a need to be in control. This is sometimes also perceived as being irresponsible and unreliable.

5. Openness to experience –People scoring higher in this scale tend to be perceived as being more open to experiences, emotions, adventures and are generally more curious about the world around them. They are more appreciative of art, abstract or unusual ideas and also tend to be more creative [33]. These traits are also sometimes perceived as lacking in focus and being unpredictable. On the other of the spectrum, people scoring lower on this scale exhibit traits that are more objective, data driven, and pragmatic. They tend to look at things through a more black and white lens. These traits are sometimes perceived as being close – minded and lacking in imagination.

Over the last three decades the five-factor personality model has seen extensive development leading to two prominent subsets of questionnaires that have been widely used. The NEO Inventories – NEO-PI, NEO-PI-R, NEO-PI-3 NEO-FFI and the Big Five Inventories (BFI) – BFI 10, BFI 2, BFI 44.

A thorough study examined the validity of BFI across cultures spanning 56 nations, 13 islands, 29 languages and 6 continents. Two of the study's objectives were to examine the factorial structure of the BFI through different human cultures and evaluate validity of BFI profiles on a national level. The study reported that the five-factor structure of the BFI was highly and easily replicable across all the major cultures. In addition, the study also reported that the results of the BFI traits remained consistent with previously reported data in the literature on a national level [132].

The FFM has become a widely used framework across many countries to study the relationship between numerous social factors ranging from learning, gaming, professional working environments (offices/companies), health, etc [45, 49, 85, 112, 130, 150].

Since this paper is using Russian and Sri Lankan participants it is important to determine the applicability of the FFM for these cultures. The literature examining the validity and reliability of the FFM in Russia is promising but not extensive and less so in Sri Lanka. In Russia, several studies have been conducted and most of the studies have focused on the issue of validation for the Russian population and cross-

cultural applications. The studies focusing on adapting the diagnostic tools to be used within the Russian samples have predominantly been taking place since the 1990s [16, 30, 68, 69]. Additional studies using twins also find consistent results for the subsets of openness to experience and extraversion [138]. Studies examining the Russian sample for the FFM find a consensus suggesting the BFI is a suitable inventory to be used for the purpose of this study [86].

The State – Trait Anxiety Inventory was first created and developed by Spielberger in the 1960s and was later revised in 1983. It has 40 questions split into 2, 20 question categories with a 4 – point Likert scale. One section measures state anxiety and the other measures trait Anxiety [78]. This questionnaire has been extensively used because it measures both scales of state and trait anxiety making it a valuable tool [125]. The STAI also shows good reliability for stability and internal consistency. Interval validity was also thoroughly examined by looking at divergent, construct, convergent and concurrent validity with good overall results being reported [57].

The STAI has been adapted into multiple languages including Russian. The initial translation was carried out by a Russian psychologist. After additional analysis, the inventory was administered to 60 undergraduate Russian students completing an English major to determine internal validity. The Russian version was also administered to 27 soccer players for 30 and 50 days after the initial administration to examine test – retest validity. Furthermore, to determine the sensitivity of the Russian scale it was administered to various athletes and students. The results concluded that the Russian version of the STAI is valid and a reliable measure [57].

The STAI has been extensively used for various purposes. For instance, it has been used in examining anxiety for surgical, psychosomatic, medical and psychiatric patients. The trait scale is also used by military recruitment agencies, college students and high school students. It is also used to evaluate short term and long-term anxiety issues in counselling and psychotherapy.

The Perceived Stress Scale (PSS) was created by Cohen, Mermelstein and Kamarak [25] and is one of the most widely used scales to measure stress [32]. It is a scale that measures and provides a global stress score which is based on questions of a general nature rather than specific experiences making it more versatile and useful among a diverse sample group [36, 73]. The questionnaire is designed to measure to which extent various situations in one's life are considered stressful. It helps assess how uncontrollable, unpredictable, or overwhelmed certain aspects the participants find in their lives.

There are 3 versions of the questionnaire - PSS 14, PSS 10 and PSS 4. The scale was initial created with 14 items but then later reduced to 10 items because 4 items were not performing adequately. The scale has been translated into several languages and used across several cultures and has been validated across all these languages and cultures adding to the relevance of the measure [55, 106, 114, 142]. This was one of the reasons the PSS was chosen for this study. A study evaluated 19 research papers that aimed to evaluate the psychometric properties of the PSS. The study reported that the PSS shows good internal consistency reliability. It also shows a good test - retest reliability and factorial validity. Overall, the questionnaire exhibits good results in regard to validity and consistency and is also easy to administer [114].

The PSS 10 was tested and validated in Russia for the Russian version [143]. The study reported the questionnaire to have satisfactory validity and high reliability. The study also reported the questionnaire to have high internal coordination and finally concluded the Russian translated version to be valid and reliable to use with the Russian population. After taking all these factors into account, especially the validation of the Russian version, this paper decided to use the PSS 10 to measure stress in its study.

3.2. Discussion of the empirical results

The analysis of the data is a as follows; To test the difference between current smokers and never smokers in Russia and Sri Lanka an ANCOVA is conducted with age as a covariate. Similarly, an ANCOVA is carried out to test the difference between Russian and Sri Lankan smokers with age as a covariate. To test for homogeneity between the covariate an ANOVA is conducted. For additional analysis, a Pearson's r is carried out to examine if a relationship exists between number of cigarettes smoked and personality characteristics

Table 1

Descriptive Statistics

	Russia	Sri Lanka
Total (344)	165	179
Nevers smokers Ex - smokers Smokers	44 (27%) 48 (29%) 73 (44%)	62 (35%) 43 (24%) 74 (41%)
Male Female	85 (48%) 80 (52%)	167 (6%) 12 (94%)
Mean age	31.3	32.9

Results for difference between current smokers and never smokers in Russia

Test for assumption of homogeneity of variance in covariate in Russian sample – An ANOVA was conducted for the covariate, age [F (1, 115) = .93, p = .336]. The results are not significant meaning the assumption of homogeneity is met.

Extraversion - An ANCOVA was conducted to compare extraversion scores in never smokers and current smokers with age as a covariate. Current smokers (M = 25.5, SD = 5.8) and never smokers (M = 26.6, SD = 6.5) have no significant difference [F (1, 115) = .86, p = .346]. There is no difference in extraversion scores between current and never smokers

Neuroticism – Current smokers (M = 25.9, SD = 4.9) and never smokers (M = 26.1, SD = 4.6) have no significant difference [F (1, 115) = .06, p = .800]. There is no difference between neuroticism in current smokers and never smokers.

Conscientiousness - Current smokers (M = 28.7, SD = 4.7) and never smokers (M = 31.4, SD = 5.2) have a significant difference [F (1, 115) = 8.3, p = .005]. Current smokers have lower conscientiousness scores than never smokers.

Agreeableness - Current smokers (M = 29.8, SD = 5.3) and never smokers (M = 31.8, SD = 4.9) have a significant difference [F (1, 115) = 4.4, p = .039] Current smokers have lower agreeableness scores to never smokers.

State anxiety - Current smokers (M = 47.3, SD = 12.7) and never smokers (M = 40.3, SD = 13.2) have a significant difference [F (1, 115) = 8.5, p = .004] Current smokers have higher state anxiety scores than never smokers.

Trait anxiety - Current smokers (M = 49.7, SD = 6.9) and never smokers (M = 47.7, SD = 7.8) have no significant difference [F (1, 115) = 2.2, p = .143]. There is no difference in trait anxiety between current and never smokers

Stress - Current smokers (M = 20.7, SD = 5.9) and never smokers (M = 18.3, SD = 6.8) had a significant difference [F (1, 115) = .15, p = .042]. Current smokers have higher stress scores than never smokers.

Results for difference between current smokers and never smokers in Sri Lanka

Test of assumption of homogeneity – An ANOVA was conducted for age F (1, 134) = 9.17, p = .153. The results are not significant meaning the assumption of homogeneity is met.

An ANCOVA was conducted to compare extraversion scores in never smokers and current smokers with age as a covariate. Current smokers (M = 25.7, SD = 4.0) and never smokers (M = 25.4, SD = 2.6) have no significant difference [F (1, 134) = .221, p = .639]. There is no difference between extraversions scores in current and never smokers.

Neuroticism - Current smokers (M = 24.9, SD = 3.3) and never smokers (M = 23.2, SD = 3.0) have a significant difference [F (1, 134) = 9.08, p = .003] Current smokers have higher neuroticism scores than never smokers

Conscientiousness - Current smokers (M = 27.7, SD = 4.3) and never smokers (M = 30.2, SD = 2.8) have a significant difference [F (1, 134) = 14.8, p = <.001] Current smokers have lower conscientiousness scores than never smokers

Agreeableness - Current smokers (M = 30.6, SD = 3.7) and never smokers (M = 30.9, SD = 3.0) have no significant difference [F (1, 134) = 2.55, p = .614]. There is no difference in agreeableness scores between current and never smokers.

State Anxiety - Current smokers (M = 46.3, SD = 4.7) and never smokers (M = 52.3, SD = 6.5) have a significant difference [F (1, 134) = 31.9, p = <.001] Current smokers have lower state anxiety than never smokers

Trait Anxiety - Current smokers (M = 52.5, SD = 5.3) and never smokers (M = 52.8, SD = 5.8) have no significant difference [F (1, 134) = .071, p = .791]. There is no difference in trait anxiety between current and never smokers.

Stress - Current smokers (M = 19.2, SD = 5.8) and never smokers (M = 20.9, SD = 4.4) have no significant difference [F (1, 134) = 2.2, p = .140]. There is no difference in stress between current and never smokers.

Table 1

	Current smokers Mean/SD	Never smokers Mean/SD	F and p values
Extraversion			
Russia	25.5/5.8	26.6/6.5	F(1, 115) = 0.86, p = .346
Sri Lanka	25.7/4.0	25.4/2.6	F(1, 134) = 0.22, p = .639
Neuroticism			
Russia	25.9/4.9	26.1/4.6	F(1, 115) = 0.06, p = .800
Sri Lanka	24.9/3.3	23.2/3.0	F(1, 134) = 9.08, p = .003
Conscientiousness			
Russia	28.7/4.7	31.4/5.2	F(1, 115) = 8.3, p = .005
Sri Lanka	27.7/4.3	30.2/2.8	F(1, 134) = 14.8, p = <.001
Agreeableness			
Russia	29.8/5.3	31.8/4.9	F(1, 115) = 4.4, p = .039
Sri Lanka	30.6/3.7	30.9/3.0	F(1, 134) = 2.55, p = .614
State Anxiety			
Russia	47.3/12.7	40.3/13.2	F(1, 115) = 8.5, p = .004
Sri Lanka	46.3/4.7	52.3/6.5	F(1, 134) = 31.9, p = <.001
Trait Anxiety			
Russia	49.7/6.9	47.7/7.8	F(1, 115) = 2.2, p = .143.
Sri Lanka	52.5/5.3	52.8/5.8	F(1, 134) = .071, p = .791

Perceived Stress			
Russia	20.7/5.9	18.3/6.8	F(1, 115) = .15, p = .042
Sri Lanka	19.2/5.8	20.9/4.4	F(1, 134) = 2.2, p = .140

Summarized results – Difference between current and never smokers

Overall results – The differences between each individual characteristic and country are outlined below to examine the results more easily.

Equal bars indicate no differences between current smokers and never smokers, while unequal bars indicate a significant difference.

Figure 1

Current and never smokers comparison - Russia

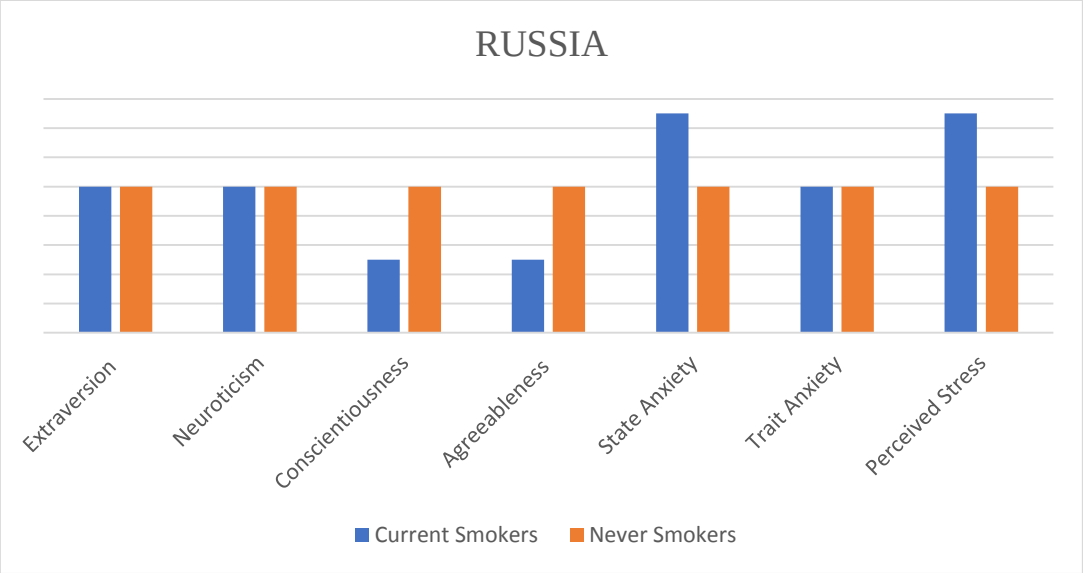
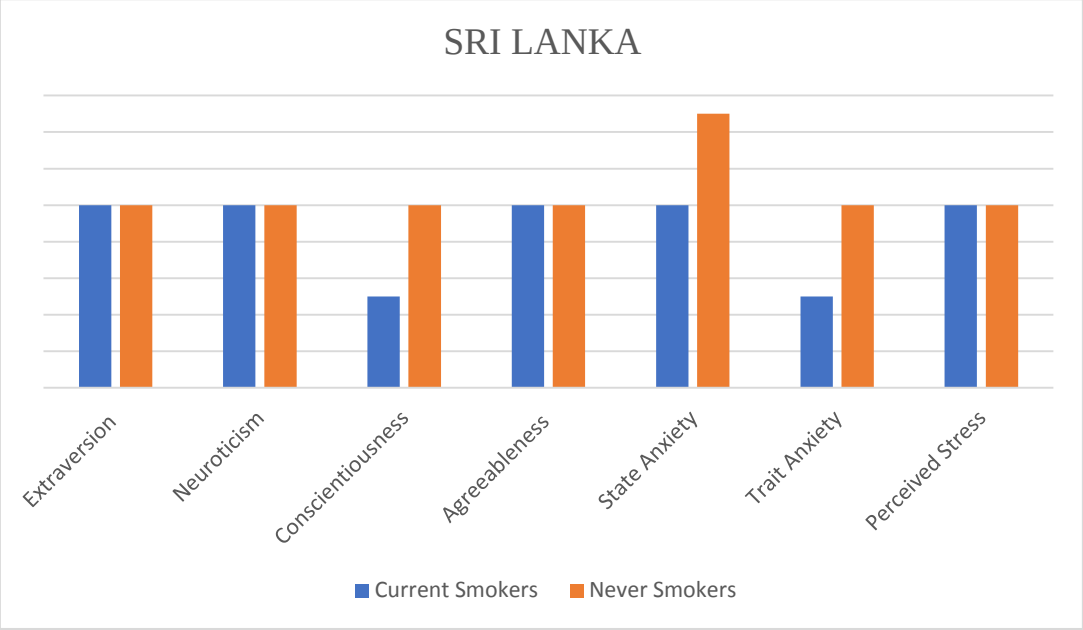


Figure 2

Current and never smokers comparison – Sri Lanka



Results for differences between Russian and Sri Lankan current smokers

Test of assumption of homogeneity – An ANOVA was conducted for the covariate, age [F (1, 145) = 3.2, p = .072]. The results are not significant meaning the assumption of homogeneity is met.

Extraversion - An ANCOVA was conducted to compare extraversion scores between Russian smokers and Sri Lankan smokers with age as a covariate. Russian smokers (M = 25.6, SD = 4.0) and Sri Lankan (M = 25.6, SD = 5.8) have no significant difference [F (1, 145) = 0.08, p = .780]. There is no difference between Russian smokers and Sri Lankan smokers for extraversion.

Neuroticism - Russian smokers (M = 25.8, SD = 4.9) and Sri Lankan smokers (M = 24.9, SD = 3.3) have no significant difference [F (1, 145) = 1.9, p = .168]. There is no difference between Russian smokers and Sri Lankan smokers for neuroticism.

Conscientiousness - Russian smokers (M = 28.7, SD = 4.7) and Sri Lankan smokers (M = 27.7, SD = 4.3) have no significant difference [F (1, 145) = 2.5, p = .114]. There is no difference between Russian smokers and Sri Lankan smokers for conscientiousness.

Agreeableness - Russian smokers (M = 29.8., SD = 5.3) and Sri Lankan smokers (M = 30.5, SD = 3.8) have no significant difference [F (1, 145) = 0.99, p = .321]. There is no difference between Russian smokers and Sri Lankan smokers for agreeableness.

State Anxiety - Russian smokers (M = 47.3., SD = 12.7) and Sri Lankan smokers (M = 46.8, SD = 4.8) have no significant difference [F (1, 145) = 0.22, p = .642]. There is no difference between Russian smokers and Sri Lankan smokers for state anxiety.

Trait Anxiety - Russian smokers (M = 49.7., SD = 6.9) and Sri Lankan smokers (M = 52.5, SD = 5.3) have a significant difference [F (1, 145) = 7.1, p = .009]. Sri Lanka smokers have higher trait anxiety in comparison to Russian smokers.

Stress - Russian smokers (M = 20.7., SD = 5.9) and Sri Lankan smokers (M = 19.2, SD = 5.8) have no significant difference [F (1, 145) = 2.3, p = .130]. There is no difference between Russian smokers and Sri Lankan smokers for stress.

Table 2

Summarized results – Difference between Russian smokers and Sri Lankan current smokers

	Russian Smokers Mean/SD	Sri Lankan Smokers Mean/SD	F and p values
Extraversion	25.6/4.0	25.6/5.8	F (1, 145) = 0.08, p = .780
Neuroticism	25.8/4.9	24.9/3.3	F (1, 145) = 1.9, p = .168
Conscientiousness	29.8/5.3	27.7/4.3	F (1, 145) = 2.5, p = .114

Agreeableness	29.8/5.3	30.5/3.8	F (1, 145) = 0.99, p = .321
State Anxiety	47.3/12.7	46.8/4.8	F (1, 145) = 0.22, p = .642
Trait Anxiety	49.7/6.9	52.5/5.3	F (1, 145) = 7.1, p = .009
Perceived Stress	20.7/5.9	19.2/5.8	F (1, 145) = 2.3, p = .130

Results for correlations between number of cigarettes smoked by current smokers and personality characteristics in Russia

Extraversion – A Pearson's r correlation was run to examine the relationship between number of cigarettes smoked and extraversion. No significant correlation was found between number of cigarettes and extraversion [r(73) = .026, p = .828].

Neuroticism –No significant correlation was found between number of cigarettes and neuroticism [r(73) = -.013, p = .910].

Conscientiousness –No significant correlation was found between number of cigarettes and conscientiousness [r(73) = -.078, p = .512].

Agreeableness –A significant negative correlation was found between number of cigarettes and agreeableness [r(73) = -347, p = .003].

State Anxiety –No significant correlation was found between number of cigarettes and state anxiety [r(73) = .072, p = .545].

Trait Anxiety –No significant correlation was found between number of cigarettes and trait anxiety [r(73) = -.007, p = .950].

Stress –No significant correlation was found between number of cigarettes and stress [r(73) = -.069, p = .560].

Results for correlations between number of cigarettes smoked by current smokers and personality characteristics in Sri Lanka

Extraversion – A Pearson's r correlation was run to examine the relationship between number of cigarettes smoked and extraversion. No significant correlation was found between number of cigarettes and extraversion [r(74) = .117, p = .319].

Neuroticism –No significant correlation was found between number of cigarettes and neuroticism [r(74) = .022, p = .853].

Conscientiousness –No significant correlation was found between number of cigarettes and conscientiousness [r(74) = -.022, p = .850].

Agreeableness –A significant negative correlation was found between number of cigarettes and agreeableness [r(74) = -.053, p = .654].

State Anxiety –No significant correlation was found between number of cigarettes and state anxiety [r(74) = .144, p = .221].

Trait Anxiety –No significant correlation was found between number of cigarettes and trait anxiety [r(74) = -.010, p = .930].

Stress –No significant correlation was found between number of cigarettes and stress [r(74) = .152, p = .197].

Results discussion

Each personality characteristics will be discussed individually in relation to the 3 hypotheses of this study.

Extraversion – The results did not show a significant difference between current smokers and never smokers in both samples. This study hypothesized that extraversion scores would be higher in current smokers and the results did not support this. The literature generally found there to be a relationship with extraversion scores and smoking. Smokers tended to have higher extraversion scores in comparison to never smoker. However, it is also important to point out that there have been a few studies indicating the relationship between extraversion and smoking becoming less convincing over time [138]. One speculation is that extroverts are more likely to smoke when the prevalence of smoking is high in the

country and societal view on smoking is not staunchly frowned upon [139]. Lately, among millennials smoking is being viewed more unfavourably and what is considered 'cool' among teenagers is the use of electronic smoking devices or vaping. Another case to be made for Sri Lanka is that after the public smoking ban (strongly enforced), smoking is not as common a sight as it used to be and societal view on smoking has become less tolerant. These could be some of the factors that have been turning extroverts away from smoking cigarettes in both Sri Lanka and Russia.

Neuroticism – Similar to extraversion, this personality trait also did not garner significant results in both samples. Neuroticism is a trait that has been found to be higher in smokers than non-smokers throughout the literature, but this study found contradicting results and the hypothesis was not supported. According to these results current smokers and never smokers in both samples seem to differ from the cultural groups examined in the literature. Further studies need to be carried out to examine this relationship.

Conscientiousness – The hypothesis stated that conscientiousness scores would be lower in current smokers in comparison to never smokers. The results support this hypothesis for both samples. Current smokers in Sri Lanka and Russia record being less conscientious in comparison to never smokers. These results track with previous research and the argument that can be made for this is, lower conscientiousness means the lack in ability to plan ahead which could be potentially contributing to the inability to reduce or stop smoking for current smokers. Furthermore, lower conscientiousness can also be tied together to lack of impulse control. This coupled with the lack of restraint and higher susceptibility could lead to smoking initiation and also undermine a person's ability to stop. Low conscientiousness has also been strongly linked with other risky health behaviours [140, 141]. This paper reports strong statistical significance between these two factors. Coupled with past research, conscientiousness seems to be heavily linked to risky health behaviour. Further research with heavier focus on conscientiousness and

its relationship to smoking behaviour will shed light on this highly correlated personality trait.

Agreeableness – Within the Sri Lankan sample the results showed no difference in agreeableness scores between current smokers and never smokers. However within the Russian group there were statistically significant results suggesting that current smokers in Russia are less agreeable in comparison to never smokers. This is interesting to note because a distinct cultural difference between these two groups might be in play here. People who are less agreeable are more likely to smoke because some researchers argue that lower agreeableness scores are linked to rebelliousness [124]. And to rebel against societal pressure, people may smoke. In addition, individuals with less agreeableness scores are likely to exhibit signs of antagonism and a lower need for societal approval. Teenage smoking among Russia is relatively high with smoking initiation starting at young age [86]. Perhaps the existing rebellious attitude of teenagers coupled with lower agreeableness scores is contributing to the higher smoking prevalence rate among the younger population. While, on the other hand, Sri Lankan current smokers and never smokers exhibit no difference in agreeableness scores, and this may be due to the fact that smoking to rebel may not be in play here. This is speculative to a certain extent, but the mean age of smoking initiation is 20.6 in Sri Lanka [89], higher than Russia. And teenage smoking is much lower in Sri Lanka than Russia, suggesting smoking initiation in Sri Lankan teenagers may not be due to rebelliousness. Another reason for this difference in agreeableness scores could be due to the fact that Sri Lanka is a more conservative, collectivist culture and because of this cultural standard, antagonism and rebelliousness may not be as prevalent to have an effect on smoking behaviour.

Anxiety – State anxiety in current smokers in the Sri Lankan sample is lower in comparison to never smokers. There was a statistically significant difference between state anxiety in current smokers and never smokers. However, the relationship was the other way around. The hypothesis stated state anxiety to be higher in current smokers however the results show that it is lower in current

smokers in comparison to never smokers. The results for the Russian group show current smokers to have higher state anxiety than never smokers with statistically significant results supporting the hypothesis of this study. This could mean that Russians smokers may be using smoking as coping mechanism for anxiety triggered due to external events. These contradicting results between the Sri Lankan sample and Russian sample are hard to explain and additional studies are needed to determine if this relationship stands.

The results for trait anxiety in both the Sri Lankan and Russian group do not produce significant results. There seems to be no difference in trait anxiety between current smokers and never smokers in both groups. These results do not support the hypothesis of this study. This suggests that perhaps trait anxiety plays no role in smoking behaviour. One possible explanation for this may be that smoking is not used as a coping mechanism for trait anxiety since the average mean scores for trait anxiety in both samples are above 40 (maximum score 80) suggesting that both the groups, to some extent, do experience trait based anxiety. Perhaps different coping strategies are adopted in Sri Lanka and Russia or trait anxiety has no relationship to smoking behaviour at all. Further research is needed to examine this relationship.

Perceived stress - Stress among the Sri Lankan group show statistically insignificant results with current smokers and never smokers showing no difference in stress scores. This suggests that stress is not a factor that moderates smoking behaviour among the Sri Lankan sample. Also, the fact that state anxiety is negatively correlated with smoking, stress and smoking in Sri Lanka may have a different relationship from the one seen in other countries or have a more complex relationship than anticipated. The reasons for these differences will further need to be explored with more research in Sri Lanka.

Perceived stress in the Russian group was found to be statistically significant between current smokers and never smokers. Meaning current smokers had higher perceived stress scores than never smokers. These results support the hypothesis and

previously reported data from other studies suggesting that perhaps stress plays a role in moderating smoking behaviour in Russia.

The results interestingly show no difference for all most all personality characteristic between Russian and Sri Lankan smokers except for trait anxiety. This rejects the third hypothesis of this study that stated personality characteristics between the two countries to be different. These results indicate that Sri Lanka and Russian smokers share many personality characteristics and therefore are quite similar in this regard. Trait anxiety is the only characteristics that was found to be different. Russian smokers were found to have less trait anxiety in comparison to Sri Lankan smokers. Some of the potential reasons the results found no differences are discussed above but further research is definitely needed to better understand the relationship of these factors.

Correlations

In addition to these results the correlations tests indicate no significant relationship between number of cigarettes smoked and personality characteristics, except for a significantly negatively correlated relationship between agreeableness and number of cigarettes smoked in the Russian sample. These results were carried out in addition to the primary statistics to determine if a relationship existed between number of cigarettes smoked and personality traits. The results suggest that most traits are not related to the number of cigarettes smoked and this may be attributed several external factors that require additional research.

CONCLUSION

The aim of this study was to examine the relationship between smoking behaviour and personality characteristics between Sri Lankan and Russian smokers, in addition to, current and never smokers in each country. The overall attempt was to examine how these factors interact with smoking behaviour and examine if the results achieved in previous studies would hold to be true in Russia and Sri Lanka. The literature examining anxiety, stress and personality with smoking behaviour is extensive, but studies carried out in Russia and Sri Lanka are severely lacking. This study hoped to bridge that gap by adding more studies to the literature with underexamined cultures and was able to meet this goal. In addition, this study collected data for several variables - extraversion, neuroticism, agreeableness, conscientiousness, openness to experience, trait anxiety, state anxiety and perceived stress. And such a data sample has not been collected, to the best of this paper's knowledge, in Sri Lanka and rarely in the Russian population. The results, for example, stress and smoking in Sri Lanka seems to have a very different relationship than what was expected based on the literature. Such results show that cultures and personality characteristics are heavily intertwined and therefore studies need to be carried out within the target population to better understand these subtle nuances.

Furthermore, Russia also exhibits results indicating cultural distinctions are strong and these distinctions are interacting with smoking behaviour in a complex manner. This study hoped to show that adopting strategies based on different countries can be risky if studies within that population are lacking and this point was illustrated. More research within these samples are crucial if we are to unravel the complex relationship between personality characteristics within these cultural groups.

Russia and Sri Lanka both have a prevalent smoking problem and this needs to be addressed. Such studies coupled with future longitudinal studies will provide a platform for policy makers to make better policy decisions in these countries. For

example, the results in this study showed that lack of conscientiousness is a strong factor distinguishing current smokers and never smokers in both countries. If further, longitudinal studies can illustrate conscientiousness to have high predicative efficacy, then schools and policy makers can take this into account when making intervention strategies. Similarly, according to the data Russians may be using smoking as a coping mechanism when under stress. Such individuals can be benefited from smoking cessations programs that provide better tools and skills to manage stress to deal with their smoking patterns.

Strategies implemented in Russia, Sri Lanka and the world, on WHO policies such as taxation and advertising, aim to reduce smoking assuming that the smoking group is a homogeneous subset, however the results indicate otherwise. Because of this very fact a diverse approach to mitigating smoking within a country is essential if real progress is to be made. For instance, intervention plans, and smoking cessation programs can construct individual or small group programs by assessing specific personality traits of the target individuals and mould the strategy based on this information.

One of the limitations of this and many other studies is defining current smokers. This question arises for 'ex- smokers' as well. One may not consider him or herself an ex – smoker but has a cigarette on and off occasionally. And even if sometimes it is not really 'occasional' people may be in denial and reluctant to accept to label themselves as 'current smokers'. Furthermore, how does one define him or herself as a current smoker – what number of cigarettes per day or week defines a current smoker. These labels can be very subjective and therefore respondents may have different responses based on their perspective. Personal bias and the subjective nature of such questions need to be considered when creating experiments to categorize people. Future researchers should look at being more specific and carry out more robust assessments to ensure categorisation is accurate and more objective.

Another limitation this study may have encountered is that it may have tried to gather too much data. This study employed the use of three separate

questionnaires with a total of 74 questions and another 13 demographic and smoking behaviour questions which is a considerable number of questions to answer. In addition, to the number of the questions, the State – Trait Anxiety Inventory and Perceived Stress Scale had questions that were similar in nature and repetitive. The multiple number of questions and its repetitive nature may have resulted in respondents losing interest or focus and rushing through the questionnaires for the sake of completion.

The method of distribution for the survey was different for the Sri Lankan sample and the Russian sample. In Sri Lanka, the questionnaires were handed to the participants physically and the questionnaires were hard copies and were filled out by hand by the participants. While the Russians received a google link and filled out the questionnaires on their computers or electronic devices. This difference could have contributed to a lack of consistency in the study's sampling method. For instance, the Russians filling out the questionnaires online received a level of anonymity that the Sri Lankans did not, potentially raising social desirability bias issues. Another point to be made is that the Russian participants had the freedom to fill the questionnaires when they wanted to or when they were free. This level of freedom was not available for the Sri Lankan participants since they were required to fill out the surveys at that very moment during working hours.

More time needs to be spent on data collection but keeping in mind the state of mind of the respondents to ensure the integrity of the data remains valid. One way to do this is to collect data from participants when they are free and not overload them with too many questionnaires. Shorter and brief questionnaires should render better data. The results reported by this study are mixed, and contradicting results have been seen in both the Russian and Sri Lankan groups. Keeping this in mind, future researchers should look to carry out studies with more specificity and focus on one or two traits at a time. This would provide a more comprehensive and detailed view on that one specific trait and help avoid subjects being overloaded with questions. Nevertheless, this study has shown that personality, culture and smoking

behaviour are heavily interconnected and require more attention. Personality traits have also shown to have good efficacy as predictors for future smoking behaviour. This should be further explored with more longitudinal studies in Russian and Sri Lankan samples.

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APPENDIX A

Big Five Inventory – 44

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree strongly - 1

Disagree a little - 2

Neither agree nor disagree - 3

Agree a little - 4

Agree Strongly – 5

1. Is talkative
2. Tends to find fault with others
3. Does a thorough job
4. Is depressed, blue
5. Is original, comes up with new ideas
6. Is reserved
7. Is helpful and unselfish with others
8. Can be somewhat careless
9. Is relaxed, handles stress well
10. Is curious about many different things
11. Is full of energy
12. Starts quarrels with others
13. Is a reliable worker
14. Can be tense

15.Is ingenious, a deep thinker
16.Generates a lot of enthusiasm
17.Has a forgiving nature
18.Tends to be disorganized
19.Worries a lot
20.Has an active imagination
21.Tends to be quiet
22.Is generally trusting
23.Tends to be lazy
24.Is emotionally stable, not easily upset
25.Is inventive
26.Has an assertive personality
27.Can be cold and aloof
28.Perseveres until the task is finished
29.Can be moody
30.Values artistic, aesthetic experiences
31.Is sometimes shy, inhibited
32.Is considerate and kind to almost everyone
33.Does things efficiently
34.Remains calm in tense situations
35.Prefers work that is routine
36.Is outgoing, sociable
37.Is sometimes rude to others
38.Makes plans and follows through with them
39.Gets nervous easily
40.Likes to reflect, play with ideas

41.Has few artistic interests
42.Likes to cooperate with others
43.Is easily distracted
44.Is sophisticated in art, music, or literature

APPENDIX B

State Trait Anxiety Inventory - STAI

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best

Not at all - 1

Somewhat - 2

Moderately so- 3

Very much so - 4

1. I feel calm
2. I feel secure
3. I am tense
4. feel strained
5. I feel at ease
6. I feel upset
7. I am presently worrying over possible misfortunes
8. I feel satisfied
9. I feel frightened
10.I feel comfortable
11.I feel self-confident
12.I feel nervous
13.I am jittery
14.I feel indecisive
15.I am relaxed

16.I feel content
17.I am worried
18.I feel confused
19.I feel steady
20.I feel pleasant

A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best

21. I feel pleasant
22. I feel nervous and restless
23.I am satisfied with myself
24.I wish I could be as happy as others seem to be
25.I feel like a failure
26.I feel rested
27.I am calm, cool and collected
28.I feel that difficulties are piling up and so that I cannot overcome them
29.I worry too much over something that really doesn't matter.
30.I am happy
31.I have disturbing thoughts
32.I lack self confidence
33.I feel secure
34.I make decisions easily
35.I feel inadequate
36.I am content
37.Some unimportant thought runs through my mind and bothers me
38.I take disappointments so keenly that I can't put them out of my mind

39.I am a steady person
40.I get in a state of tension or turmoil as I think over my recent concerns and interests

APPENDIX C

Perceived Stress Scale - 10

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

Never - 0

Almost Never – 1

Sometimes - 2

Fairly often - 3

Very often - 4

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and "stressed"?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

APPENDIX D

DATA – RUSSIA – PERSONALITY CHARACTERICTICS

E – Extraversion O – Openness to Experience

A- Agreeableness PSS – Stress

C – Conscientiousness Trait – Trait Anxiety

N – Neuroticism State – State Anxiety

E	A	C	N	O	PSS	STATE	TRAIT
Never smokers							
31	40	38	23	43	11	23	44
28	42	25	26	33	13	27	43
30	33	33	30	34	19	52	45
32	28	26	29	38	18	39	53
36	31	39	33	39	23	30	47
33	39	25	23	41	11	24	47
28	40	41	18	31	15	23	33
16	37	38	24	31	13	46	46
26	40	39	27	29	11	20	48
33	29	26	29	29	14	50	57
24	38	32	28	38	22	37	38
19	31	31	33	32	24	42	58
37	38	36	24	38	9	26	42
37	38	37	24	38	9	26	42
30	36	30	26	25	22	49	52
31	28	32	26	27	14	46	49
32	33	36	24	36	14	24	41
24	27	32	36	30	31	58	62
25	29	35	29	43	20	48	37
25	29	26	23	31	23	52	48
26	24	39	25	37	7	28	37
24	32	35	32	36	27	56	54
26	34	32	25	32	19	41	52
26	32	29	26	31	20	24	54
24	30	28	25	36	31	60	56
34	34	39	18	33	8	23	33
26	28	30	22	24	21	49	48
18	23	32	26	34	20	46	55
25	30	26	21	27	23	49	51

19	26	29	36	30	25	54	56
30	32	33	22	25	18	39	40
17	28	21	29	33	22	46	54
22	31	24	34	26	30	57	55
31	34	32	25	31	20	37	52
18	24	32	26	27	20	52	50
35	31	34	16	33	8	20	33
34	26	37	23	31	8	24	41
27	36	27	24	42	15	38	46
12	34	26	27	16	29	69	66
37	36	32	24	33	10	22	37
20	25	25	20	13	16	50	47
20	26	23	31	32	19	42	45
14	28	34	33	25	31	52	53
25	28	26	22	24	20	52	52
Ex - Smokers							
17	29	28	30	33	22	47	56
33	32	37	20	34	20	30	39
35	40	39	16	38	13	28	37
29	27	38	28	31	10	29	48
25	30	30	28	33	23	37	45
24	30	24	29	31	26	71	61
25	27	33	26	27	18	40	40
34	23	21	25	34	7	20	44
29	34	27	28	38	23	57	56
26	39	34	20	32	13	34	39
34	32	25	21	36	14	24	32
14	24	14	37	34	27	72	65
18	30	19	34	37	25	54	52
24	26	29	32	41	23	41	53
21	25	26	34	42	20	31	61
29	33	39	22	41	11	26	42
32	30	31	23	40	13	35	44
28	28	33	28	41	25	44	49
32	34	34	29	37	21	42	49
20	30	25	30	34	21	32	55
25	36	34	23	37	24	40	46
32	32	33	26	34	25	42	47
35	31	20	29	40	11	23	40
37	28	26	29	42	14	40	43
29	31	29	22	27	15	32	43
31	39	36	19	29	13	32	41
24	29	27	24	27	23	49	50

27	28	28	23	25	23	52	52
20	26	27	24	30	23	51	51
26	26	28	26	30	26	54	49
25	26	24	30	40	28	23	45
18	24	35	33	29	27	62	53
28	37	41	24	35	17	20	30
34	28	32	20	41	12	31	41
31	34	28	25	28	21	43	44
23	36	27	25	23	16	39	54
32	37	39	22	33	9	25	32
18	26	27	25	42	6	23	40
24	21	30	29	33	20	26	45
29	27	30	23	36	14	32	45
28	33	39	22	41	15	36	42
28	33	39	22	41	15	36	42
24	36	37	19	32	24	36	52
26	38	29	30	32	21	34	47
30	29	37	27	38	10	32	41
28	31	27	24	28	17	34	49
17	28	26	30	37	20	35	50
27	31	28	22	28	18	53	45
Smokers							
36	43	31	35	40	27	62	54
35	34	26	22	33	7	24	35
32	29	34	27	41	15	39	41
25	29	21	34	34	28	63	59
21	38	31	34	39	25	40	51
33	34	27	22	34	8	30	44
27	31	32	21	29	21	31	48
13	33	18	36	31	32	75	65
24	32	36	23	38	17	28	49
22	38	33	24	31	7	40	43
33	35	26	24	30	21	41	45
38	34	35	25	39	10	27	41
13	29	15	35	32	34	79	66
22	27	33	28	33	18	46	53
27	24	32	23	31	24	51	48
24	23	26	24	31	25	50	49
30	25	32	27	30	19	51	52
32	42	27	25	40	23	26	47
34	42	23	33	43	32	75	65
33	25	27	29	32	26	61	60
19	25	33	34	36	20	49	53

26	30	34	24	24	20	44	47
26	22	22	32	37	19	49	52
21	32	28	24	29	20	44	53
22	22	26	38	35	29	72	61
26	26	26	25	29	21	52	50
24	29	29	21	25	20	50	49
25	27	26	25	29	18	50	52
26	28	25	22	27	18	54	53
22	28	26	26	33	23	47	55
28	29	31	35	37	27	61	50
28	38	32	17	31	24	56	50
35	38	37	21	39	17	41	41
22	24	26	28	20	19	53	45
23	29	26	26	27	17	56	49
24	25	25	28	24	22	56	50
24	23	30	24	31	24	48	47
28	30	27	30	32	20	40	48
24	25	27	23	28	21	46	45
21	26	29	26	26	22	48	46
30	35	31	26	36	25	46	53
31	34	31	26	36	22	48	54
27	28	29	22	28	21	46	53
22	29	29	18	20	21	50	49
37	40	40	18	43	12	26	38
26	26	26	24	26	22	51	51
26	25	29	23	24	20	48	50
25	31	30	25	28	22	46	48
25	27	29	23	30	22	49	51
27	24	28	22	30	22	51	50
25	28	29	25	28	20	52	52
29	26	27	23	28	23	43	49
28	27	24	23	32	20	48	53
23	26	29	24	28	19	51	48
18	29	27	22	28	20	50	47
29	23	28	26	30	24	50	53
26	33	27	25	32	20	45	53
17	34	30	28	29	20	50	47
19	27	34	34	29	29	71	60
12	28	25	30	33	26	59	55
33	25	40	28	38	6	22	34
22	33	26	22	24	28	58	55
24	29	33	23	25	15	34	50
18	34	44	30	22	29	68	64

19	32	30	19	41	12	26	33
13	17	28	36	25	30	54	57
21	39	22	24	31	19	40	50
24	30	23	29	32	24	56	48
32	24	28	28	38	21	31	53
25	28	27	27	34	20	39	45
21	34	23	14	29	13	30	39
30	32	30	21	29	14	33	33
35	36	30	22	45	9	27	42

DATA - SRI LANKA – PERSONALITY CHARACTERITICS

E	A	C	N	O	PSS	STATE	TRAIT
Never Smokers							
26	30	30	23	27	24	45	40
25	27	27	29	33	33	40	57
25	30	24	26	34	20	51	55
26	34	29	25	39	13	52	52
27	31	34	24	33	18	52	60
27	35	35	24	32	20	53	46
29	35	30	19	27	23	50	53
23	32	32	24	31	21	52	52
24	26	30	24	30	21	60	60
25	31	30	25	26	22	58	61
26	28	29	23	31	27	71	59
24	28	31	22	25	29	53	54
26	34	33	23	36	21	49	41
27	33	32	27	31	30	55	54
25	35	28	18	28	24	49	49
30	34	35	26	30	19	51	49
23	27	27	33	25	19	47	46
22	29	28	26	26	16	46	48
24	31	31	26	31	23	58	51
27	29	24	24	28	22	50	47
27	29	31	21	28	19	57	53
27	32	28	25	27	20	51	46
24	27	31	19	25	21	49	58
26	31	29	25	28	26	54	51
26	30	31	23	31	14	51	51
24	31	33	28	30	22	46	52
26	34	25	26	30	21	51	55
28	30	34	24	25	18	58	64
29	38	34	21	28	13	45	54

27	35	31	18	30	27	41	60
26	25	31	21	30	10	46	46
26	34	34	24	26	21	49	63
29	33	33	18	30	25	46	57
25	31	31	21	31	18	53	49
24	24	27	21	21	16	52	47
31	35	35	21	38	14	54	52
27	28	26	23	27	23	58	53
26	31	31	18	26	15	51	47
25	30	32	20	21	18	57	57
23	29	29	23	28	19	59	58
26	33	32	22	25	17	56	48
24	35	29	21	26	22	52	51
23	27	35	19	28	21	56	52
24	29	30	24	25	18	48	56
26	31	27	20	28	20	58	52
24	27	32	21	25	24	54	54
27	29	31	20	29	24	60	49
27	34	27	21	24	20	62	51
27	32	32	22	28	17	52	50
29	33	29	20	27	19	62	60
17	27	28	22	28	19	58	52
26	29	30	28	31	24	57	70
20	30	32	22	27	17	66	55
27	33	30	30	32	27	64	60
27	32	27	25	25	17	50	53
19	27	37	25	28	18	49	57
20	28	30	27	28	22	46	53
27	32	32	23	28	13	46	40
20	34	25	26	32	22	34	51
23	32	27	21	26	28	52	59
29	36	29	25	29	21	48	46
28	30	29	24	34	21	40	48
Ex - Smokers							
27	29	29	26	30	27	58	58
19	31	32	29	31	26	58	53
26	24	29	26	25	26	63	58
23	29	28	22	34	29	56	65
33	31	33	23	31	19	54	47
30	33	27	29	38	16	46	49
31	30	35	24	32	13	54	49
26	35	31	23	27	28	46	55
30	30	25	24	38	18	50	51

25	34	25	30	28	27	59	62
28	34	37	20	31	21	53	47
28	30	29	25	25	22	51	57
24	31	30	25	31	22	52	64
23	31	34	27	25	27	44	60
32	35	31	20	34	20	51	47
37	35	29	27	30	12	50	53
24	36	30	26	29	16	52	49
19	27	28	20	19	23	35	33
20	27	23	29	30	20	49	57
24	31	31	23	24	18	44	50
20	33	28	23	33	17	53	45
23	30	34	27	34	35	44	53
15	17	26	30	24	27	51	53
23	32	24	23	31	21	43	53
25	32	25	30	31	28	52	52
30	33	26	24	36	23	48	67
31	34	41	23	30	16	45	57
24	26	33	28	32	22	53	52
21	27	33	23	37	10	50	54
22	30	29	17	28	13	53	49
23	28	31	25	36	19	51	50
29	30	32	23	30	16	47	54
27	34	35	21	36	15	58	47
27	35	31	22	32	15	48	46
28	32	36	19	30	15	53	37
22	33	33	19	32	26	46	42
34	37	32	23	39	10	49	42
28	32	26	26	31	21	53	49
29	31	32	27	38	18	43	43
27	28	25	27	24	18	45	59
17	34	33	30	36	21	46	52
26	29	34	26	24	19	57	60
28	28	29	26	26	23	58	51
Current Smokers							
30	29	31	23	28	19	44	52
32	32	28	21	28	22	54	54
31	32	23	32	30	29	57	60
27	34	32	19	32	17	43	50
28	32	29	28	38	15	44	61
22	30	26	22	24	10	51	56
26	38	26	25	31	18	40	56
25	29	27	25	24	21	43	54

28	29	23	24	26	26	56	59
27	31	27	22	30	26	56	53
27	26	31	24	23	24	47	52
31	24	22	26	27	15	52	48
26	26	29	25	38	29	33	53
30	28	28	29	33	17	48	52
27	30	22	22	32	22	44	54
24	30	29	26	32	20	35	46
24	33	28	26	32	18	48	45
34	33	30	26	31	16	52	46
27	32	20	23	29	17	45	43
31	33	26	21	29	13	50	46
28	30	28	23	29	27	55	54
23	36	26	26	29	22	41	45
14	23	18	25	19	36	48	59
28	34	25	21	29	13	45	45
28	35	37	23	25	10	45	52
22	35	26	24	25	17	47	54
27	26	27	22	29	16	43	55
14	31	18	26	24	28	52	55
21	30	26	25	32	14	46	48
22	31	34	24	32	18	54	51
30	37	24	24	30	13	44	60
24	32	22	29	38	18	44	54
24	30	26	32	37	19	50	63
26	31	29	27	34	12	49	47
29	28	32	19	34	15	43	53
31	29	29	26	24	14	49	53
26	26	34	28	31	23	44	52
24	30	27	24	31	10	48	50
28	34	32	23	28	20	39	48
20	29	26	26	32	23	41	54
27	34	29	22	26	19	50	53
29	31	30	25	29	19	50	45
15	28	26	28	30	35	52	61
25	31	38	24	33	18	52	53
25	37	27	25	25	20	40	43
21	24	29	30	33	20	46	51
26	25	27	20	30	18	54	45
20	26	31	24	29	23	47	47
30	26	36	28	28	20	54	54
27	30	28	24	29	20	49	45
24	39	26	21	32	19	45	55

23	30	31	25	30	24	48	60
28	35	21	33	36	35	51	53
27	36	32	26	26	16	44	48
31	34	31	23	33	4	46	50
26	32	24	29	32	25	42	50
25	29	28	31	24	17	46	59
25	30	34	21	23	19	47	49
25	31	22	21	19	24	44	54
27	22	20	21	32	21	45	55
22	31	34	21	37	20	42	49
21	38	32	24	29	16	48	55
22	34	30	26	28	11	47	56
27	30	22	28	38	24	46	54
24	26	26	32	34	17	48	68
27	32	28	27	33	11	49	49
33	33	27	20	25	16	38	47
26	28	23	23	27	15	47	62
30	25	36	23	34	20	44	45
17	34	34	23	30	17	51	52
24	33	24	28	25	14	46	58
24	24	28	28	35	24	43	52
26	27	28	30	36	20	44	62
28	31	28	21	32	19	46	54